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ABSTRACT

The study evaluates the educational effectiveness of indigenous paraprofessionals engaged in Cooperative Extension's nutrition education program for low income families n an inner city community of New York City. Of the 20 paraprofessionals, all but one black or Spanish-speaking women, nearly all gained in knowledge and understanding of teaching and learning strategies, a majority changed their feelings positively toward their job, and a majority rated above average job-persistence factors while on the job. In addition, 10 of the 14 rated on teaching performance with clientele were rated at the mean or above. The experimental and comparison groups of homemakers were demographically similar to the paraprofessionals except for having less education, more and younger children, and being more Spanish-speaking than black. During the program, participants exhibited higher nutritional intakes and levels and more nutritional knowledge than did the nonparticipants. In sum, the study provided evidence that it is possible to select, conduct inservice education for, and place in an inner city community paraprofessional women, of backgrounds similar to their clientele, who can help their clientele improve their nutritional knowledge and practices. Five tables correlating and analyzing by means of stepwise regression the dependent and independent variables are appended. (JR)

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EFFECTIVENESS OF PARAPROFESSIONALS IN WORKING WITH LOW INCOME FAMILIES: AN EXPERIMENTAL STUDY

Presented by Bettie Lee Yerka

at the Adult Education Research Conference
St. Louis, Missouri
1975

The impact of paraprofessionals in new careers programs -- impact on the employing agency, on the paraprofessionals and on the consumers of human services is acclaimed. The paraprofessional concept has become widely popular and is included in many kinds of social legislation dealing with vocational education, rehabilitation, health manpower, juvenile delinquency and senior citizens' programs. Not only have many new careers programs had as components helping the poor through meaningful employment, they also have helped social and educational agencies by making available a supply of indigenous workers capable of bridging the gap between agency staff and community families. Indigenous aides have been considered to have rapport with a low income community because they understand the lifestyle of families living there and may act as a link between an agency, the professional staff and clientele in the delivery of an agency's programs and services.

Many of the critical links in these delivery systems are in the hands of the paraprofessionals. However, owing to the newness of the paraprofessional movement little empirical research has been conducted on some of the evolving concerns of program planners and administrators. The study reported in this paper was undertaken in response to some of the fundamental issues arising out of a program illustrative of those wherein indigenous paraprofessionals work in a teaching and helping capacity with limited resource families. Its ultimate aim was to propose guidelines for the selection, training and supervision of indigenous paraprofessionals providing educational services to limited

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resource families; it was specifically designed to provide insight into the characteristics and behavior of paraprofessionals employed in a program within Cooperative Extension.

This study was planned as the third component of the project "Effectiveness of Paraprofessionals in Working with Low Income Families" conducted by this investigator and Nelson at the New York State College of Human Ecology at Cornell University. The overall comprehensive study involved the construction of several instruments and measurements for appraising the effectiveness of specific paraprofessionals in Cooperative Extension in eight upstate New York counties and one community in New York City as well as a follow-up study of paraprofessionals and clientele in upstate New York.

Purpose of the Study

The basic underlying questions in this study were whether paraprofessionals are effective, i.e. do clientele benefit, what is there about paraprofessionals that make them effective and what can an agency do to increase the contributions that make paraprofessionals effective?

The purpose of the study was to examine selected factors in relationship to the educational effectiveness of indigenous paraprofessionals engaged in a community education program. The program investigated was Cooperative Extension's nutrition education program for low income families in an inner city community of New York City.

The specific factors in the study were the paraprofessionals': knowledge and understanding of the teaching and learning process; attitudes toward assuming their role; and dimensions related to job persistence and performance. The criterion against which achievement was measured was success of families in reaching program objectives. The objectives in this study, then, were to determine the relationships between the paraprofessionals' knowledge and understanding of teaching and learning principles and strategies, the attitudes they held

toward the job, their job-related persistence and performance, and the level of desired practices attained, program information recalled and recognition of assistance received by program clientele.

Description of the Design, Sample and Instrumentation

The design used in the study was the nonequivalent control group design described by Stanley and Campbell. Twenty neighborhood aides employed in Cooperative Extension's nutrition education program in one New York City community comprised the population of twenty paraprofessionals on whom three measurements were taken. Fourteen of these paraprofessionals remained in employment long enough for a fourth measurement developed during the course of the study. In order to ascertain the impact of the paraprofessionals' efforts on community families, samples of seventy-six experimental homemakers and thirteen comparison homemakers were interviewed and their records analyzed.

Instruments constructed by Stuhlmiller in an earlier phase of the overall study, and reported on at the 1973 Adult Education Research Conference in Montreal, were utilized to help determine the ability of paraprofessionals to induce desired behavior changes in families: knowledge and understanding of teaching and learning principles and strategies, an interview-achievement test, administered twice; attitudes toward jobs in human services, a Likert-type scale measuring the paraprofessionals' attitude toward the job and its environment, administered twice; and job persistence, an observation-rating device on those performance factors related to job persisting behaviors. An on-the-job performance rating scale, developed during the study, determined the paraprofessionals' actual follow through in teaching families. These measurements comprised the independent variables in this study. In addition, a form was constructed to ascertain, through content analysis of their written daily "logs", the paraprofessionals' perceived input into program participants' lives.

Cooperative Extension program records which the paraprofessionals kept, at six-month intervals, on the food consumption practices and

nutritional knowledge of the homemaker in each family and an interview of participant recognition of assistance received (attitudes/behavior) were utilized as criterion measures of program success, the dependent variables.

All data were gathered over a two year period. The direct recipient or program participant, the homemaker, and the direct provider, the paraprofessional, were the primary sources of data. In addition to the food consumption practice and nutritional knowledge data the paraprofessionals collected from homemakers, interviewers, who were judged to know and be accepted within the community, were employed to administer an interview schedule both to experimental and comparison homemakers. The paraprofessionals responded to the teaching and learning knowledge and understanding tests administered by the investigator and attitude scales during their working hours. The professionally-trained Cooperative Extension staff completed anecdotal records on job persistence and observed paraprofessionals in teaching situations as part of their supervisory responsibilities.

Sources of bias and distortion were minimized in these ways: purposes of the study were carefully explained periodically to the paraprofessionals and feedback for program use made, as appropriate, to their supervisors or to them; data provided by the paraprofessionals were not utilized for administrative purposes; homemakers were interviewed by persons outside of the program employed specifically for this purpose and trained by the investigator; data collection procedures were established and sampling and data analysis were conducted by the investigator.

Data Regarding the Paraprofessionals

Demographic data describing the paraprofessionals were obtained from employment application forms completed by the aides. The twenty paraprofessionals, indigenous to an inner city New York community, were either black or Spanish-speaking women (only one was white) who were employed on a part-time basis. All except one had had prior paid

work experience and half indicated their most recent job had been one with a human-service, new career-type orientation. Their average age was 31.5 years (within a range of 18-49) and a majority had completed from 9 to 12 years of formal education. The majority of the paraprofessionals were married and their spouses held clerical or service-type jobs; they had a mean number of 2.7 children (within a range of 0-7) whose ages (mainly elementary and secondary school level) indicated the paraprofessionals' own families were in the middle stages of the family life cycle.

Nearly all (18) gained in knowledge and understanding of teaching and learning strategies while on the job. Differences between the means of these sets of pre and posttest scores were examined by a t test for paired observations and found to be statistically significant at the .005 level. It may be assumed the job experience itself, in addition to exposure to continuous inservice education implemented by the professional staff, contributed to this change in knowledge among the paraprofessionals.

Sixty-five per cent (13) of the paraprofessionals changed their feelings or attitudes positively toward their job over this period of their employment. A statistically significant difference at the .025 level was discovered between the pre and posttest means for these scores, through the use of a t test for paired observations. Generally the scores appeared to reflect positive initial feelings about the job and its responsibilities, which were sustained and became even more positive, for 65 per cent of the paraprofessionals.

Job persistence factors were reflected in a single set of achievement scores. A job persistence score was a synthesis of the supervisor's observations and ratings, over a period of time, of the paraprofessionals' indication of their intention to remain employed or to become more employable. The majority (12) of these paraprofessionals were considered by their supervisors to be above average in certain job-related persisting behaviors which indicated their desire and interest in keeping their jobs.

Fourteen of the twenty paraprofessionals were rated on their teaching performance with clientele. Over 70 per cent (10) were placed at the mean or above on their performance and behavior as observed immediately before, during and just after single visits to program clientele. The paraprofessionals rated on this measure were those available at the time of the observation ratings. This measurement was the practice variable, i.e., implementation of the teaching and learning component of the paraprofessional inservice education program and job experience.

The instruments were measuring fairly discrete characteristics on this particular population of paraprofessionals, i.e., job persistence only was correlated, and then with low significance, with attitudes ($r = -.23$) and on-the-job performance ($r = .37$).

The task of developing the potential of indigenous paraprofessionals is complex in that they need frequent guidance and counsel. Those who require additional assistance might profit from such support while those marginal on the job might benefit equally from exit counseling. Hence, despite differences in relationships of the paraprofessional variables just described to the criteria of program success, the implementation of these measures is recommended. For example, the teaching and learning interview schedule might be applied by the supervisor to new paraprofessionals and a carefully planned inservice education program of principles and strategies implemented throughout the paraprofessionals' tenure. The various sections of the schedule might be readministered later on as part of their inservice education program. The results of an on-the-job performance rating might function as both yearly appraisal and intermediate data for supervisor-paraprofessional counseling on the latter's follow through with families. The attitude toward work scale might be used as a discussion piece between supervisors and paraprofessionals on aspects of human service jobs. The job persistence measure might be utilized as an orientation tool for new employees, be used in counseling sessions between the professional and paraprofessional, and function as a measuring instrument for promoting staff "up-the-ladder".

Data Regarding the Clientele

The experimental group of program clientele had had two measurements of their knowledge and practice related to food and nutritional program objectives, taken during several months of paraprofessional influence, and no known involvement in a community health clinic where services of professional nutrition and health personnel were available.

The comparison group had had only initial contact with a paraprofessional and first measurements of their knowledge and practice as well as no known involvement in a community health clinic offering professional nutritionist and health services.

Demographic information was collected on the experimental and comparison homemakers from family records taken by the paraprofessionals. The homemakers reflected the Spanish-speaking and black ethnic composition of the community. They tended to be women between 32 and 34.4 years of age with some formal education. The majority of the homemakers in both groups had not completed high school nor had had additional training. A four to five member family with two to three children was an average family size; a husband/father figure was present in 60 to 70 per cent of the families. Most of the families had monthly incomes below $417. Half-or nearly half - of both groups were receiving food stamps and a majority of the families had children enrolled in the school lunch program. The ethnicity, education, income and public food program participation factors were indicators of the program's capacity to attract the population for whom it was intended.

Through an independent sample proportion test the experimental and comparison groups of clientele differed in a major way, demographically, only in terms of ethnicity (α .001) and age (α .05). The experimental group had a significantly higher percentage of black homemakers while the comparison group had a significantly higher percentage of Spanish-speaking homemakers. Ethnic differences were of little practical significance, however, since the majority of the homemakers in both groups

were Spanish-speaking. Significantly more of the comparison homemakers were in the 30 to 39 years of age category (α .05) than were the experimental homemakers who tended to fall, in near equal number, into both the 30 to 39 and 20 to 29 age categories. The experimental group more often tended to include younger homemakers (with young children) whose families were more frequently receiving public assistance and lower incomes than the nonprogram participants. The nonparticipant group, as a sample of the program's potential clientele, was identified through statistical assistance as having sufficient similarities to function in a comparative sense to the program participants.

The clientele were demographically similar to the paraprofessionals except for having less education, more and younger children and being more Spanish-speaking than black. The teaching efforts of the paraprofessionals, then, were reaching homemakers of a somewhat similar age and the same ethnic mix (though differently proportioned) but with lower educational resources and larger and younger families. The paraprofessionals may have been in an intermediate position, socioeconomically, between the homemakers and the remainder of the community, possibly a desirable position for human service workers.

There were four criteria of program success in this study: two measures of desired nutritional practice on the part of community homemakers, i.e., a food consumption score and a subsequent level of nutritional attainment; one measure of nutritional knowledge, i.e., homemaker recall of specific program information; and one measure of homemaker recognition of assistance received or desired from the program and the paraprofessionals. Measures of nutritional practice and knowledge were taken twice during the study and the measure of recognition of assistance received or desired was taken once near the end of the study.

When analysis of covariance and, subsequently, the F test for significance were utilized to test for significant differences between the experimental and comparison homemakers on their food consumption,

nutritional level and knowledge scores it was found that the experimental homemakers did significantly and/or practically better, and in a positive direction, on all three measures. This was an indication that paraprofessional intervention was actually making a difference, in the lives of participating homemakers, relative to program goals.

Similar to a nation-wide report on Cooperative Extension's nutrition education program for low income families, most of those homemakers in the experimental group who had the lowest scores on their nutritional level pretest made the greatest gains at posttest time in this study. The experimental homemakers experienced a higher proportion of positive change than did the comparison homemakers.

When responses of experimental and comparison homemakers to the interview of their recognition of educational assistance received or identified as needed were examined for differences between group proportions it was found that changes in attitudes and behavior had occurred in a larger percentage of the experimental than the comparison women. In all cases, these modifications could be considered beneficial. The paraprofessionals had established appropriate rapport with the program participants.

Among the more significant changes reported by homemakers were improvements in nutrition (α .001), use of food stamps (α .01), food preparation techniques and information (α .01) and money management (α .001). They felt their outlook on life much changed (α .001) and that their lives had improved (α .0005). More of the experimental than the comparison homemakers could identify positive changes that they planned to make in their lives and indicated these changes had been inspired by the paraprofessionals. They indicated their satisfaction with the intervention of the paraprofessionals, specifically through favorable relationships that had been established between them, reaction to the paraprofessionals' recommendations, a desire for continuing assistance, and with the program and the paraprofessionals in general.

Certain questions in the homemaker interview relating to attitudes toward the paraprofessional and her teaching program, and behavior adopted as a result, formed a thirteen item scale. In order to compare the experimental and comparison groups, this attitude/behavior scale was reduced to those seven items which were comparable for both groups. Analysis of variance was used to test for significant differences between the homemaker groups on the total scale and on each of the items. The F value for differences between the total scores was highly significant (α .025). Five of the seven variables had significant F values, the experimental group always attaining higher scores. In each case the program participants indicated a more favorable conception of changes in their lives, and, consequently, the intervening processes of the paraprofessionals. The experimental homemakers, in the remaining six scaled items, demonstrated further their attitudes and behavior as a result of exposure to paraprofessional teaching. They identified saving money in food shopping, looking to the paraprofessionals as a source of assistance with additional concerns, contacting them for help, feeling the paraprofessionals encouraged them to try things, sharing information they had learned and recommending the program to others.

The literature in new careers has usually stressed the importance of the social characteristics of paraprofessionals; an integral component of this program, however, was the ability of the paraprofessionals to teach and to help others learn to do for themselves. Since the two groups of homemakers were fairly similar demographically, it was assumed that the period of time the paraprofessionals spent with the homemakers was influential in creating changes the experimental group attributed to the work of the paraprofessionals. A major determinant of whether or not the paraprofessionals could influence the homemakers to change patterns of behavior seemed to be their ability to demonstrate that their teaching was of value. The rapport established between the two permitted the development of confidence in the paraprofessional, thus making it possible for the latter to demonstrate families in the community could live better. For example, the homemakers often could be described as

lonely and with many problems; in these cases, the paraprofessionals appeared to be helpful in providing linkages between homemakers and community resources.

In sum the program participants exhibited higher nutritional intakes and levels and more nutritional knowledge than did the program nonparticipants; the paraprofessionals were helping women of limited resources to improve their nutritional knowledge and practices. With exposure to the paraprofessionals' teaching, favorable attitudes toward the program and the paraprofessionals and specific behaviors were identified by the participants. By utilizing a comparison group in this study, the results tended to show attitudes, changed practices and knowledge of homemakers as a function of the paraprofessionals' influence.

Paraprofessional Effectiveness

A major purpose of this study was to determine the relationships between paraprofessional effectiveness, as assessed by family behavior, knowledge and attitudes and a number of selected variables, namely paraprofessional on-the-job performance, knowledge of teaching and learning, job persistence and attitude toward work. The mean posttest scores of homemakers on food consumption, nutritional level, nutritional knowledge and their mean scores on a perceived attitude/behavior scale were utilized as criterion measures to discover differences between effective and less effective paraprofessionals.

First, a correlation matrix was developed to assess the relationships among the paraprofessional measures and the homemaker scores on the total sample and again on the subsample of paraprofessionals who were rated on the on-the-job performance measure. Three demographic factors -- age, education and previous job experience--also were utilized. Some of the findings follow.

Correlation coefficients on the total sample ranged from a low of .02 to a high of .52. The paraprofessional variable correlating

most often and highly with the criterion measures was knowledge of teaching and learning followed by attitudes toward the job, education and job persistence. Those paraprofessionals who knew most about teaching and had more education (none was very highly educated) had worked with homemakers whose attitudes and behaviors were more positive toward the program and the paraprofessionals' efforts. Those paraprofessionals who knew most about teaching and held the most highly positive feelings about their work had worked with homemakers who had higher nutritional knowledge scores. Those who knew about teaching and also persisted at their jobs had worked with homemakers who attained the highest nutritional levels. The most persuasive relationship with homemaker attainment was the paraprofessionals' knowledge of teaching and learning -- a consideration for planners of continuing education for paraprofessionals.

On the subsample of homemakers and paraprofessionals the range of correlation coefficients was from a low of .01 to a high of .71. The paraprofessional variable correlating most highly with the criterion measures here was on-the-job performance followed by education, job persistence, attitudes toward the job, knowledge of teaching and learning and age. It appeared that those paraprofessionals who were observed putting into practice principles and strategies of learning and teaching, i.e., job performance, were effective in motivating homemakers to practice their teachings. The correlation coefficients indicated that however much might be known about teaching and learning was even better expressed in the paraprofessionals' observed on-the-job performance. Knowledge of how to aim for specific goals in their teaching may have contributed to their practical use of these skills. As on the larger sample, this relationship has implications for implementing inservice programs for paraprofessionals, for counseling and for supervision. The paraprofessionals who were more persisting and who were somewhat older had more successfully practicing homemakers. Feelings about the job requirements and environment were negatively associated with homemaker practice but teaching skills and persistence were positively associated.

Knowledge of teaching and learning and feelings about the job were directly related to the homemakers' nutritional knowledge while job persistence on this smaller sample was inversely related. The more they felt good about the job the better they may have been able to impart knowledge; the more they knew about working with people, the more effective did they appear in imparting knowledge. As on the larger sample, education had the highest degree of association with homemaker-perceived attitudes/behavior developed through paraprofessional assistance.

The same data then were submitted to multiple regression analysis to determine the most influential predictors of paraprofessional success. The stepwise regression procedure was employed and the regression equations were run twice since on-the-job performance, as a predictor variable, was not obtainable on all the paraprofessionals. The .10 level of significance, or higher, for each F value was utilized to establish the acceptance or rejection of the equation and those independent variables (paraprofessional characteristics) contributing 10 percent or more to the dependent variables (homemaker attainment) were specifically examined as major predictors. The results of the analysis on the total sample revealed that knowledge of teaching and learning was a significant and/or major predictor of three criterion measures. A more positive attitude toward the job was a major contributor to one criterion measure while positive job persistence contributed to one criterion measure and was a significant, though not a major, predictor of one other criterion measure. Age, i.e., older paraprofessionals, and higher levels of education were both major and significant predictors of one variable each with education significantly related to one other criterion measure. All together the predictor variables contributed 19 to 62 per cent of the total variance in the four regression equations.

The analysis on the subsample revealed the most significant and major predictor was paraprofessional on-the-job performance, i.e., implementation of principles and strategies of learning and teaching, for two of the four criterion variables, followed by highly positive attitudes toward the job for one criterion variable. Somewhat less

positive attitudes also were significantly related to the remaining criterion variables and were a major contributor to one. Although paraprofessional feelings or attitudes toward the job became the second most significant predictor of homemaker food consumption and nutritional levels on this subsample, the most successful paraprofessional, in terms of these homemaker practices, did not seem to hold the most positive feelings about the job.

Paraprofessional knowledge of teaching and learning was significantly related to, though not a major predictor of, all four criterion variables. The same situation existed relative to job persistence and one criterion variable while lack of job persistence also contributed in a major way to one criterion variable. Paraprofessional education was a highly related and important contributor to one criterion variable and was significantly related to one other criterion measure. Age was significantly related to one criterion variable and lack of job experience to two. Altogether the predictor variables contributed from 58 to 76 per cent of the total variance of the four criterion variables.

It was recognized that variables increasing R^2 by small amounts may not contribute much further data to a regression equation even though a single variable by itself may be highly correlated with the dependent variables.

Parts of each of four hypotheses developed around the relationships between paraprofessional characteristics (nondemographic) and homemaker attainment were supported. For any part of a hypothesis to be supported, a paraprofessional characteristic made a positive contribution of 10 per cent or more, as a single predictor variable, to a criterion measure and had a significance level of .10 or better. Specifically there was a positive relationship between the paraprofessionals' knowledge of teaching and learning and the homemakers' recall of program information (nutritional knowledge) and recognition of assistance received (attitudes/behavior); attitudes toward the job and the homemakers' recall of program information (nutritional knowledge); on-the-job performance and the homemakers' desired practices (food

consumption and nutritional level achievement).

There were clear indications in this study that knowledge of how to teach and how people learn plus skillful practice of the teaching components (on-the-job performance) were predictive of the success a paraprofessional may have with clientele. It appeared that the paraprofessionals used sound teaching and learning practices in effecting changes, perhaps more so than they realized -- some may have been less aware of the techniques they were using and, therefore, less able to respond relative to them when interviewed about their knowledge of teaching and learning. The study reported here suggested special training helped the paraprofessionals be more adequate in this respect. Although it was not always a strong indicator, teaching knowledge was a steady one. And, on the subsample, performance of these learned teaching skills took precedence relative to specific homemaker practices.

Positive paraprofessional attitudes toward human service jobs, however, did not seem to have predictive power except relative to homemaker knowledge. On the subsample, attitudes often showed a significant but inverse relationship.

The pattern of relationships revealed between job persisting behaviors and homemaker attainment suggested that persisting behaviors of the paraprofessional may be more related to other criterion variables than presented in this study. They may be more important to the employer's conception of job holding than to the paraprofessional and his/her ability to bring about changes in people's lives. These behaviors may be a reflection of an employer's concept of conventional job holding behaviors and may have to do with "quantity" rather than "quality" of work. It may also indicate that quality of success, e.g., clientelegains in practice and knowledge, need to be more carefully explored with paraprofessionals so they see the "end result" of their efforts.

Although three paraprofessional sociocultural variables were included in the set of explanatory variables in this analysis, they rarely influenced, significantly, the size of the homemakers' achievement scores.

A higher level of education, even though the paraprofessionals were not highly educated, was a significant and important predictor of some clientele behavior with a slight indication that maturity was also important.

This study did not attempt to examine all the variety of influences or operating factors that could contribute to paraprofessional or clientele performance, such as methods used in training paraprofessionals, changes occurring within the paraprofessionals' lives, influences of race, culture or personality on paraprofessional-family relationships, or the intensity of the paraprofessional instruction to and the problem load of clientele. The study involved one set of paraprofessionals working in one inner city community. There was a limited number of homemakers in a comparison group due to difficulties in obtaining participants.

Undoubtedly because of the size of the paraprofessional sample and the fact a subsample had to be employed also, the relationships in this analysis were at times complex and difficult to sort out. Trends were observed, however, which can be considered by program developers who are utilizing paraprofessional manpower.

Conclusion:

This study has provided evidence that it is possible to select, conduct inservice education for and place in an inner city community paraprofessional women whose backgrounds in some cases are not too different from those of the clientele they teach. The paraprofessionals demonstrated a capacity to learn, to benefit from inservice education and supervision, to establish relationships with families generally considered difficult to reach and to work effectively with them in order to help improve their nutritional practices, knowledge and their families' lives in related ways.

Recommendations:

Experimentation and documentation are still needed as many important problems remain unsolved in the development of paraprofessionals' ability to make educational efforts more effective and efficient. Although the recommendations that follow for the selection, supervision and inservice education of indigenous paraprofessionals are aimed primarily toward Cooperative Extension and its nutrition education and similar programs, they may equally apply to teaching programs of other agencies employing indigenous paraprofessionals.

Since paraprofessional knowledge of teaching and learning was important to the success of families in this study, it would be useful to develop a standardized training approach to the acquisition of these knowledges and skills by paraprofessionals who teach. Based on the preliminary findings in this study a video tape cassette program, One Strong Link, has been developed in New York State Cooperative Extension. Its focus is on teaching and communication skills for paraprofessionals. It is recommended that appropriate outlines, films and discussion guides for supervisors on teaching and learning be developed. Because of the diverse settings in which indigenous paraprofessionals perform their functions -- and the variety of these functions -- a basic set of teaching skills would have utility in a wide variety of settings and functions.

Supervision, as a key to ongoing evaluation, should be directed at enhancing the growth of paraprofessionals. Since on-the-job performance ratings were most highly associated with criterion practice variables in this study, this kind of measure could well become part of a paraprofessional supervisor's tools.

Since positive attitudes were evident in all paraprofessionals and their attitudes did change overall during the course of

employment, it is recommended that the attitude scale be administered when paraprofessionals begin work and then again after several months on the job to note if there are areas of work that the supervisor can clarify or relationships she/he can help to strengthen for the paraprofessionals. More exploration on a larger sample would perhaps clarify relationships between this variable and the criterion measures of paraprofessional success utilized in this study.

Since job persistence was related somewhat to the criterion variables but did not add much to the regression equations, more work on developing appropriate criterion variables (caseload, for example, or expected levels of achievement) needs to be carried out. Further study of this variable is warranted.

Local program administrators could utilize all the foregoing measures to improve their local programs by helping the paraprofessionals do a better job and by helping the professionals learn more about the paraprofessionals in relation to their job.

From this study it would appear that mature indigenous para professionals with educational levels from nine to twelve years have acquired the characteristics which make them effective in bringing about changes in the lives of clientele. These data check with the literature and place paraprofessionals slightly above the clientele in education; at the same time they are in a position in the family life cycle wherein they may be more able to handle out-of-the-home responsibilities. It is recommended these become demographic considerations in the selection of indigenous paraprofessionals. Whether having had former job experience is beneficial is difficult to interpret. More study might be done on this factor, yet if jobs are to be handled by fairly indigenous workers, this may not be an important variable either for selection purposes or further study.

A point of diminishing returns should be established for the guidance of paraprofessionals and their clientele. It is recommended that rating scales be developed and tested on which paraprofessionals can periodically indicate progress of their families so that "graduation" criteria might be firmed up and paraprofessionals move on to other families. The primary purpose of the scales would be to help the paraprofessionals and program supervisors identify a family's needs, resources available to the family and achievement of the family in steps toward each of the program's goals. The intensity of the family's problems as well as the feasibility of absorbing the clientele into other agency programs could be noted. It would be suitable to assess the relationships between the rating scales and paraprofessional and other criterion measures utilized in this study.

Since there may be many paraprofessional training differences based upon the competencies and judgment of individual professionals, the content should be continually analyzed for subject matter and communications and teaching components. If appraisal of the paraprofessionals indicates that the work being done is of poor quality, a modification of the inservice education program should be an expectation. Inservice education beyond the basic program should focus around the paraprofessionals' perceived needs for information and skills in working with families as well as the knowledge and skills to be achieved by respective program participants.

Professional staff, as well as paraprofessionals, need appropriate on-the-job training to supplement their initial skills in paraprofessional training and supervision.

Continuous evaluation and follow up of program participants should be conducted at the local level to ensure that a program keeps in tune with its clientele. Program evaluation determines whether choice of end results is still appropriate and may suggest the

best way of achieving them.

Progress has been made in techniques for evaluating manpower programs, i.e., the utilization of control groups and the application of multivariate techniques. There is a need for further extensive studies using appropriate methods for data collection and program evaluation. Replication is important, too, as it is difficult to make cross-program comparisons unless the same variables are utilized.

Since paraprofessionals can make contributions to the extension and improvement of the functions of human service agencies, further studies on how extensive the contribution is, factors that may produce it, and what may be done to increase it should be explored. Also worthy of study is how the organization's performance may be affected as it moves to a fuller implementation of a new careers program involving new staffing patterns and new work to be done by adult education agencies.

In summary, the author believes future investigation should focus on more exploration of paraprofessional effectiveness, in terms of factors contributing to clientele success, as well as the effect on an organization of a new careers program. Continuous needs and impact assessment of clientele enrolled in a program where paraprofessionals carry out intervention strategies should be assumed locally. Measures need to be developed to assist paraprofessionals and their supervisors to identify clientele needs and achievement in relation to program goals.

Further information about this study may be obtained from "Effectiveness of Paraprofessionals in Working with Low Income Families: An Experimental Study", an unpublished Ph.D. dissertation, Syracuse University, Syracuse, New York, 1974 by Bettie Lee Yerka.

A SELECTED BIBLIOGRAPHY

Campbell, Donald T. and Stanley, Julian C. "Experimental and Quasi-Experimental Design for Research on Teaching." Handbook of Research on Teaching. Edited by N. L. Gage. Chicago, Ill.: Rand McNally and Co. for the American Educational Research Association, 1963.

Dixon, Wilfrid J. and Massey, Frank J., Jr. Introduction to Statistical Analysis. 3rd edition. New York: McGraw-Hill Book Co., Inc., 1969.

Feaster, J. Gerald. Impact of the Expanded Food and Nutrition Education Program on Low Income Families: An Indepth Analysis. Washington, D.C.: U. S. Department of Agriculture, Marketing Economics Division, Economic Research Service, November, 1972.

Frye, Robert E. "The Expanded Food and Nutrition Education Program." Paper presented at the 1971 National Agricultural Outlook Conference, Washington, D. C., February, 1971.

Gartner, Alan. Paraprofessionals and Their Performance, A Survey of Education, Health and Social Service Programs. New York, Washington, and London: Praeger Publ., 1971.

Grosser, Charles, Henry, William S. and Kelly, James G., eds. Nonprofessionals in the Human Services. San Francisco, Calif.: Jossey-Bass, Inc., 1969.

Koenker, Robert H. Simplified Statistics for Students in Education and Psychology. Bloomington, Ill.: McKnight and McKnight Publishing Co., 1961.

Loomis, Marianne R. "The Development of Instruments to Evaluate the Success of Homemakers in the Expanded Food and Nutrition Education Program." Unpublished M.S. thesis, Cornell University, 1973.

Mallory, Berenice. "Auxiliary Workers in Today's Society." Journal of Home Economics, LXIII, No. 5 (May, 1971).

Nelson, Helen Y. and Yerka, Bettie Lee. "Effectiveness of Paraprofessionals in Working with Low Income Families." Research Proposal. Ithaca, N. Y.: New York State College of Human Ecology, Cornell University, 1969. (Ditto.)

Nixon, Russell A. "Congressional Actions" in Nonprofessionals in the Human Services. Edited by Charles Grosser, William E. Henry and James G. Kelly. San Francisco, Calif.: Jossey-Bass, Inc., 1969.

Reiff, Robert and Reissman, Frank. The Indigenous Nonprofessional, A Strategy in Community Action and Community Mental Health Programs. Monograph 1, Community Mental Health Journal. New York: Behavioral Publications, Inc., 1965.

A Selected Bibliography Cont'd.

Reissman, Frank. New Careers, A Basic Strategy Against Poverty. Introduction by Michael Harrington. New York: A Philip Randolph Educational Fund, no date.

Snedecor, George W. and Cochran, William G. Statistical Methods. 6th edition. Ames, Iowa: The Iowa State University Press, 1967.

Stuhlmiller, Emilie M. "The Development and Use of Instruments to Assess the Effectiveness of Paraprofessionals in Working with Low Income Families." Unpublished Ph.D. dissertation, Cornell University, 1973.

Suchman, Edward A. Evaluative Research, Principles and Practice in Public Service and Social Action Programs. Russell Sage Foundation. Hartford, Conn.: Connecticut Printers, Inc., 1967.

APPENDIX

TABLE 1.--Correlations Between Four Dependent and Six Independent Variables Predictive of Paraprofessional Effectiveness

Independent Variables (Number = 20)	Dependent Variables (Number = 76)			
	Gross Food Consumption	Nutritional Level	Nutritional Knowledge	Attitudes/ Behavior
Teaching-learning principles/ strategies	.17	.35[e]	.41[c]	.52[a]
Attitudes toward work	.04	-.07	.41[b]	-.21
Job persistence	.28	.32[f]	-.24	.18
Age	.11	.16	.27	.02
Experience	.22	.20	.23	.28
Education	.07	.25	.24	.47[d]

[a]Significant at .01 level.

[b]Significant at .03 level.

[c]Significant at .04 level.

[d]Significant at .05 level.

[e]Significant at .06 level.

[f]Significant at .08 level.

TABLE 2.--Correlations Between Four Dependent and Seven Independent Variables Predictive of Paraprofessional Effectiveness

Independent Variables (Number = 14)	Dependent Variables (Number = 62)			
	Gross Food Consumption	Nutritional Level	Nutritional Knowledge	Attitudes/ Behavior
Teaching-learning principles/ strategies	.12	.27	.39[g]	.35
Attitudes toward work	-.37[h]	-.44[f]	.54[c]	-.33
Job persistence	.50[d]	.45[e]	-.45[e]	.10
On-the-job performance	.67[b]	.71[a]	.17	.11
Age	.38[h]	.37[h]	.01	-.21
Experience	-.05	-.16	-.23	-.05
Education	.13	.30	-.10	.68[b]

[a]Significant at .002 level.

[b]Significant at .004 level.

[c]Significant at .02 level.

[d]Significant at .03 level.

[e]Significant at .05 level.

[f]Significant at .06 level.

[g]Significant at .08 level.

[h]Significant at .10 level.

TABLE 3. --Stepwise Regression Analysis: Prediction of Paraprofessional Effectiveness as Determined by Criterion Measures of Clientele Success

Predictor Variables (Number = 20)	Dependent Variables (Number = 76)							
	Gross Food Consumption		Nutritional Level		Nutritional Knowledge		Attitudes/Behavior	
	D.F.	Beta/F	D.F.	Beta/F	D.F.	Beta/F	D.F.	Beta/F
Job persistence	(1,18)	.414 / 1.51 (8%)	(2,17)	.329 / 2.56	(4,15)	-.397 / 4.32[a]	(4,15)	.118 / 3.33[b]
Experience	(2,17)	.318 / 1.56	(3,16)	.141 / 1.88	(6,13)	-.140 / 3.52[b]	(5,14)	.112 / 2.60[c]
Attitudes toward work	(3,16)	.149 / 1.18	N/A[d]		(1,18)	.401 / 3.69[c] (17%)	(3,16)	-.260 / 4.60[a]
Age	(4,15)	-.083 / 0.86	(5,14)	.061 / 1.06	(2,17)	.671 / 4.15[b]	N/A	
Teaching-learning principles/ strategies	(5,14)	.060 / 0.65	(1,18)	.275 / 2.54 (12%)	(3,16)	.327 / 4.44[a]	(1,18)	.436 / 6.66[a] (27%)
Education	(6,13)	-.047 / 0.51	(4,15)	.139 / 1.41	(5,14)	.322 / 4.29[a]	(2,17)	.311 / 5.03[d]
R		.435		.525		.786		.693
R^2		.189		.275		.618		.481

[a]Significant at .025 level

[b]Significant at .05 level

[c]Significant at .10 level

[d]N/A = F value or tolerance level insufficient for computation

TABLE 4. --Stepwise Regression Analysis: Prediction of Paraprofessional Effectiveness as Determined by Criterion Measures of Clientele Success

Predictor Variables (Number = 14)	Dependent Variables (Number = 62)							
	Gross Food Consumption		Nutritional Level		Nutritional Knowledge		Attitudes/Behavior	
	D.F.	Beta/F	D.F.	Beta/F	D.F.	Beta/F	D.F.	Beta/F
On-the-job performance	(1,12)	.524 / 9.84[b] (45%)	(1,12)	.455 / 12.13[a] (50%)	(6,7)	.129 / 2.07	(7,6)	-.050 / 1.27
Attitudes toward work	(2,11)	-.193 / 6.28[c]	(2,11)	-.327 / 9.36[a]	(1,12)	.295 / 4.87[d] (29%)	(4,9)	-.223 / 3.15[c]
Job persistence	(3,10)	.278 / 4.22[d]	(7,6)	.117 / 2.69	(4,9)	-.687 / 2.66	(5,8)	.174 / 2.32
Teaching-learning principles/ strategies	(4,9)	.115 / 3.02[e]	(5,8)	.292 / 4.27[d]	(2,11)	.216 / 3.08[e]	(3,10)	.320 / 3.68[c]
Education	(5,8)	.059 / 2.18	(3,10)	.234 / 7.06[b]	(7,6)	.099 / 1.56	(1,12)	.554 / 10.30[b] (46%)
Experience	(6,7)	.054 / 1.60	(4,9)	-.145 / 5.30[c]	(5,8)	-.322 / 2.72	(2,11)	-.172 / 5.35[c]
Age	N/A[f]		(6,7)	.173 / 3.54[e]	(3,10)	.491 / 2.26	(6,7)	-.062 / 1.72
R		.760		.870		.803		.772
R^2		.578		.758		.646		.597

[a] Significant at .005 level.
[b] Significant at .01 level.
[c] Significant at .025 level.
[d] Significant at .05 level.
[e] Significant at .10 level.
[f] N/A = F value or tolerance level insufficient for computation.

Hypotheses in this study were concerned with the positive relationships between the:

1. amount of understanding and knowledge of teaching-learning strategies exhibited by the paraprofessional and the:
   a. level of desired practices by program clientele;
   b. recall of program information by program clientele;
   c. recognition of assistance received from the paraprofessional by program clientele.
2. attitude toward her role in the delivery of human services exhibited by the paraprofessional and the:
   a. level of desired practices by program clientele;
   b. recall of program information by program clientele;
   c. recognition of assistance received from the paraprofessional by program clientele.
3. extent of job-related persistence exhibited by the paraprofessional and the:
   a. level of desired practices by program clientele;
   b. recall of information by program clientele;
   c. recognition of assistance received from the paraprofessional by program clientele.
4. on-the-job performance of the paraprofessional and the:
   a. level of desired practices by program clientele;
   b. recall of program information by program clientele;
   c. recognition of assistance received from the paraprofessional by program clientele.

TABLE 5. —Significant, Major Predictors and Direction of Predictions: Results of Multiple Regression Analyses of Homemaker Data with and without Paraprofessional Job Performance Measure

	Criterion Variants[a] (Homemaker)							
	R^2 Change / Level of Significance							
Predictor Variables (Paraprofessional)	1		2		3		4	
	A[b]	B[c]	A	B	A	B	A	B
Teaching-learning principles/ strategies					+ .126 / .025		+ .270 / .025	
Attitudes toward work					+ .170 / .10	+ .288 / .05		
On-the-job performance	N/A	+ .450 / .01	N/A	+ .502 / .005	N/A		N/A	

[a]Key to criterion variables:

1. Food consumption score } level of desired
2. Nutritional level score } practices
3. Nutritional knowledge score) recall of program information
4. Attitudes-behavior score) recognition of assistance received

[b]For A Number = 76 homemakers; analysis without job performance measure.

[c]For B Number = 62 homemakers; analysis with job performance measure.